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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/774,166

02/06/2004

Brian S. Doyle

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06/14/2005

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/774,166

Applicant(s)

DOYLE ET AL.

Examiner

Laura M. Schillinger

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2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Claims 14-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/10/05.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Canaperi et al ('935).

Canaperi teaches the following claimed limitations as cited below:

1. A method comprising: providing a first wafer having a stack structure of a first base substrate, a layer of relaxed film, and a first layer of strained film, depositing a layer of oxide onto the layer of strained film to provide an adhesion surface to the first wafer (Col.3, lines: 25-65); providing a second wafer, the second wafer being a silicon on insulation (SOI) wafer having a stack structure of a second base substrate and a layer of oxidized film (SGOI- Layer 82 (Fig.4); attaching the

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first and second wafers; and heating the first and second wafers at a first temperature to cause a silicon dioxide ( $\text{SiO}_2$ ) adhesion of the first substrate to the second substrate (Col.6, lines: 10-20).

2. The method of claim 1 further comprising: implanting hydrogen onto the first wafer before depositing the layer of oxide onto the second layer of strained film to create an embrittled region in the layer of relaxed film (Fig.2 (70)).

3. The method of claim 2 further comprising: heating the first and second wafers at a second temperature to delaminate the two wafers along the embrittled region to form the second wafer having the layer of relaxed film (Col.4, lines: 49-55).

4. The method of claim 3 further comprising: etching the relaxed film on the surface of the second wafer to expose the strained film (Col.5, lines: 1-15).

5. The method of claim 1 wherein the first and second base substrates are made of silicon material (Abs.,lines: 1-5).

6. The method of claim 1 wherein the layer of relaxed film is a relaxed Silicon Germanium ( $\text{SiGe}$ ) layer having a thickness in a range of approximately 0.1 to 3.0  $\mu\text{m}$  (Col.3, lines: 45-50).

7. The method of claim 1 wherein the layer of oxide is deposited at a thickness range of approximately 50 to 3000A (Col.4, lines: 5-10).

8. The method of claim 2 wherein the hydrogen is implanted at an energy range of approximately 1 to 20 keV(Col.4, lines: 10-15) .
9. The method of claim 3 wherein the second temperature is higher than the first temperature (Compare Col.6, lines: 25-30 to Col.4, lines: 50-55).
10. The method of claim 3 wherein the first temperature is in a range of approximately 100 C to 300 degrees C (Col.6, lines: 25-30).
11. The method of claim 3 wherein the second temperature is in a range of 400 C to 600 degrees C (Col.4, lines: 50-55).

***Allowable Subject Matter***

Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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12. The method of claim 1 further comprising: etching the first base substrate, and the layer of relaxed film to result in the strain of film on the surface of the SOI wafer.

13. The method of claim 12 wherein the etching of the first layer of strained film comprises wet etching the layer of relaxed film.

Claims 12 and 13 contain allowable subject matter because prior art of record fails to teach to form a strain in the strained layer by etching, rather it is formed by the nature of the crystalline layer itself. Consequently claims 12-13 are not anticipated by prior art.

### *Conclusion*

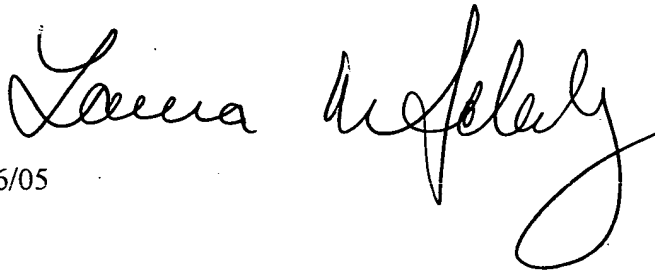
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697.

The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Laura M Schillinger", with a large, stylized flourish at the end.

Laura M Schillinger  
Primary Examiner  
Art Unit 2813

06/06/05